Service Manual

Technics
HI-FI COMPONENTS
Technics

FM/AM
4 CHANNEL/2 CHANNEL RECEIVER

MODEL SA-5400X

TECHNICAL SPECIFICATIONS (IHF)

Specifications are subject to change without notice for further improvement

AUDIO SECTION

Music power:	4 ch. operation		68W (4Ω)
	Balanced transformerless operation		68W (8Ω)
1 kHz continuous (RMS) power:			
4 ch. operation	Each ch. driven		14W/14W/14W/14W (4Ω)
			11W/11W/11W/11W (8Ω)
	All ch. driven		9W +9W +9W + 9W (4Ω)
			8W + 8W + 8W + 8W (8Ω)
Balanced transformerless operation			
Each ch. driven			25W/25W (8Ω)
Both ch. driven			20W+20W (8Ω)
20 Hz~20 kHz continuous (RMS) power:			
4 ch. operation	All ch. driven		7W+7W+7W+7W (8Ω)
Balanced transformerless operation	Both ch. driven		15W+15W (8Ω)
Total harmonic distortion:			0.8%
Intermodulation Distortion (60 Hz : 7 kHz : 4 : 1, SMPTE)			1.0%
Power bandwidth:	All ch. driven at 8Ω		7Hz~28kHz, −3dB
Frequency response:		PHONO	RIAA standard curve ±1dB
		AUX	10Hz~50kHz, +0, −3dB
Residual hum & noise:			1.5mV
Input sensitivity & Impedance:		PHONO	2.5mV/50kΩ
		AUX	180mV/40kΩ
		PLAYBACK	180mV/40kΩ
		MIC	3mV/50kΩ
S/N (IHF, A):		PHONO	70dB
		AUX	90dB
Tone control:		BASS	50Hz, +12dB −10dB
		TREBLE	10kHz, +10dB, −10dB
Loudness control (Volume at −30dB):			50Hz, +14dB
REC OUT:			180mV
Damping factor:			30 (8Ω)

FM TUNER SECTION

Frequency range:		88~108MHz
FM sensitivity (IHF):		2.0μV
Alternate channel selectivity:		65dB
Harmonic distortion:	MONO	0.4%
	STEREO	0.7%
S/N:		65dB
Frequency response:		20Hz~13kHz, $^{+1}_{-2}$dB
Image rejection (at 98 MHz):		50dB
IF rejection (at 98 MHz):		60dB
Spurious response rejection (at 98 MHz):		60dB
Capture ratio:		2dB
AM suppression:		47dB
Stereo separation (at 1 kHz):		37dB
Leak carrier (19 kHz, 38 kHz):		50dB

AM TUNER SECTION

Frequency range:	520~1610kHz
Sensitivity:	30μV
Selectivity:	25dB
Image rejection (at 1000 kHz):	40dB
IF rejection (at 1000 kHz):	40dB

GENERAL

Power consumption:	180W
Power supply:	AC 50/60Hz, 110/120/220/240V
Dimensions (W x H x D):	409×136×337mm (16 3/32" ×5 3/32" ×13 9/32")
Weight:	8.85kg (19.5 lb.)
Load impedance: 4 CH	4~16Ω
Balanced Transformerless	8~16Ω

TECHNISCHE DATEN (DIN 45 500)

Änderungen vorbehalten

VERSTÄRKERTEIL

Musikleistung:	4-Kanal Betrieb		4×17W(4Ω)
	Transformatorlos Ausgeglichen Betrieb		2×34W(8Ω)
Nennleistung 1kHz:			
4-kanal Betrieb Alle Kanäle in Betrieb			4× 9W(4Ω)
			4× 8W(8Ω)
Transformatorlos Ausgeglichen Betrieb Beide Kanäle in Betrieb			2×20W(8Ω)
Nennleistung 20Hz~20kHz:			
4-Kanal Betrieb Alle Kanäle in Betrieb			4×7W (8Ω)
Transformatorlos Ausgeglichen Betrieb Beide Kanäle in Betrieb			2×15W(8Ω)
Klirrfaktor:			
Nennleistung, bei 1000 Hz 4Ω			0.8%
Nennleistung, bei 40~14000 Hz 4Ω			0.9%
Leistungsbandbreite (Alle Kanäle in Betrieb 4Ω):			7Hz~28kHz, −3dB
Frequenzgang:			10Hz~50kHz, −3dB
Eingangs-Empfindlichkeit und-Impedanz:		PHONO	2.5mV/50kΩ
		AUX	180mV/40kΩ
		MIC	3mV/50kΩ
Tonband-Cinchbuches:		PLAYBACK	180mV/40kΩ
		REC OUT	180mV
Fremdspannungsabstand:			
bei Nennleistung		PHONO	58dB
		AUX	80dB
bei 50mW Ausgangsleistung		PHONO	50dB
		AUX	55dB
Klangregler:	Tiefen-Bereich		+12dB, −10dB bei 50Hz
	Höhen-Bereich		+10dB, −10dB bei 10kHz
Loudness-Regler:			50Hz +14dB
Dampfungsfaktor:			30 bei 8Ω
Ausgänge Lautsprecher:	4-Kanal Betrieb		4~16Ω
	Transformatorlos Ausgeglichen Betrieb		8~16Ω

FM TUNERTEIL

Empfangsbereich:	88~108MHz
Antennenanschluß:	300Ω (symmetrisch)
	75Ω (unsymmetrisch)
Empfindlichkeit (bei ±40kHz Hub):	
	2.0μV, 30dB Fremdspannungsabstand 300Ω
	1.6μV, 20dB Fremdspannungsabstand 300Ω
	1.1μV, 20dB Fremdspannungsabstand 75Ω
Klirrfaktor (bei ±40kHz Hub): MONO	0.3% STEREO 0.7%
Fremdspannungsabstand: MONO	54dB STEREO 53dB
Selektivität bei 400kHz:	65dB
Spiegelselektion (bei 98MHz):	50dB
ZF-Festigkeit (bei 98MHz):	60dB
Verzerrungsfestigkert (bei 98MHz):	60dB
Gleich wellen-Selektion:	2dB
AM-Unterdrückung:	47dB
Stereo-Übersprechdämpfung:	37dB bei 1kHz
Pilotton-Unterdrückung:	48dB bei 19kHz, 72dB bei 38kHz
Begrenzung, Einsatzpunkt:	1.3μV
Bandbreit: ZF-Verstärker	300kHz
UKW-Demodulator	700kHz

AM TUNERTEIL

Empfangsbereich:	520~1610kHz
Empfindlichkeit:	30μV
Selektivität:	25dB
Spiegelselektion:	40dB
ZF-Festigkeit:	40dB

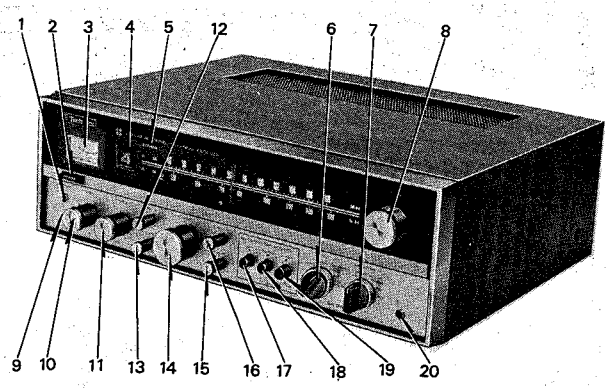
ALLGEMEINS

Leistungsaufnahme:	180W
Netzspannung umschaltbar:	AC50/60HZ, 110/120/220/240V
Abmessungen (BxHxT):	409×136×337mm
Gewicht:	8.85kg

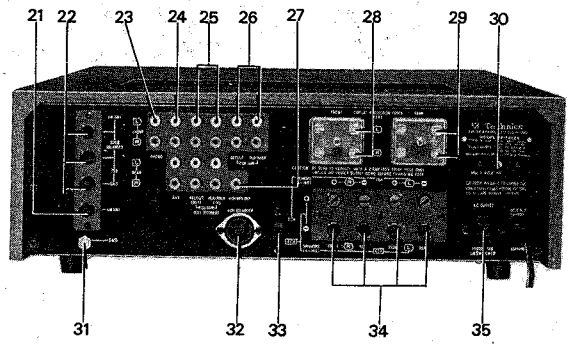
MATSUSHITA ELECTRIC
MATSUSHITA ELECTRIC TRADING CO., LTD.
P. O. Box 288, Central Osaka, Japan

ORDER NO. AD-045

■ LOCATION OF CONTROLS



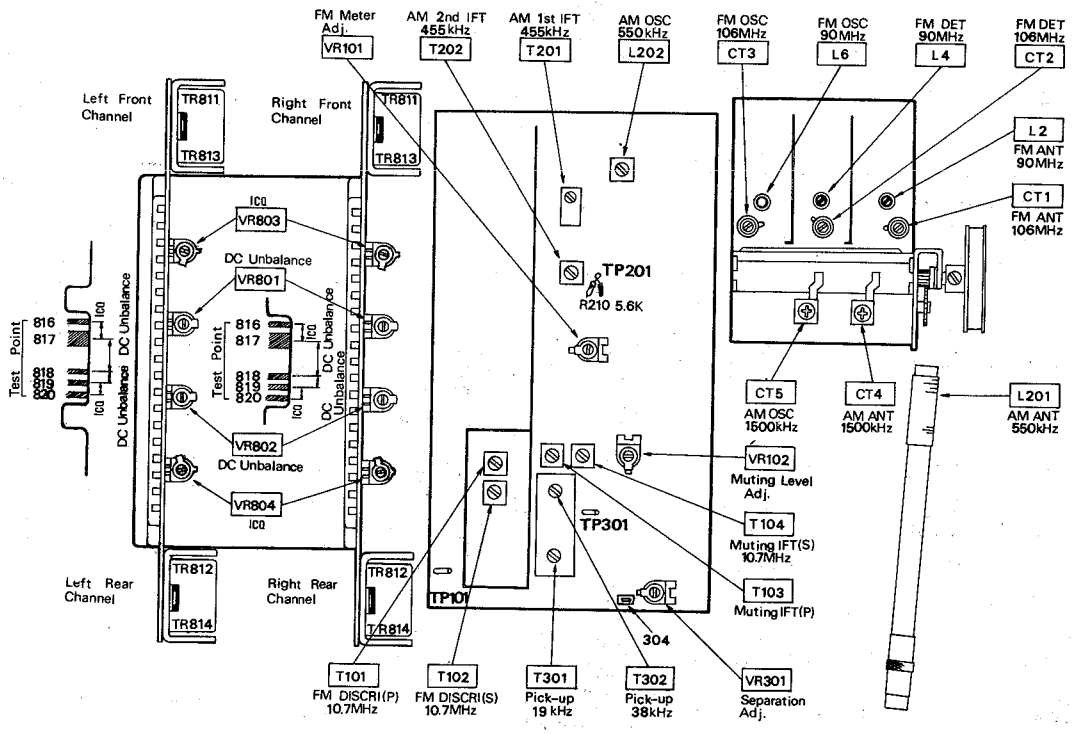
1. HEADPHONES JACK...Front Channel
2. POWER SOURCE SWITCH (S7)
3. SIGNAL STRENGTH METER
4. CHANNEL INDICATOR
5. STEREO INDICATOR
6. MODE SWITCH (S2)
7. SELECTOR SWITCH (S1)
8. TUNING CONTROL
9. HEADPHONES JACK...Rear Channel
10. BASS CONTROL (VR702)
11. TREBLE CONTROL (VR701)
12. LEFT FRONT LEVEL CONTROL (VR601)
13. LEFT REAR LEVEL CONTROL (VR603)
14. MAIN VOLUME CONTROL (VR605)
15. RIGHT REAR LEVEL CONTROL (VR604)
16. RIGHT FRONT LEVEL CONTROL (VR602)
17. LOUDNESS SWITCH (S4)
18. 4CH. TAPE MONITOR SWITCH (S5)
19. 2CH. TAPE MONITOR SWITCH (S3)
20. MICROPHONE JACK



21. EXT. AM ANTENNA TERMINAL
22. EXT. FM ANTENNA TERMINALS
23. PHONO INPUT TERMINALS...2 Channel
24. AUX INPUT TERMINALS...4 Channel
25. 4CH. TAPE MONITOR TERMINALS
26. 2CH. TAPE MONITOR TERMINALS
27. 4CH. MPX OUTPUT TERMINAL
28. FRONT CH. CIRCUIT PROTECTION FUSES
29. REAR CH. CIRCUIT PROTECTION FUSES
30. VOLTAGE SELECTOR SWITCH (S8)
31. GROUND TERMINAL
32. 4CH. REMOTE BALANCER CONNECTION SOCKET
33. BALANCED TRANSFORMER LESS SWITCH (S6)
34. SPEAKER TERMINALS
35. AC POWER OUTLET . . . Unswitched

■ ALIGNMENT INSTRUCTIONS

• Alignment Points



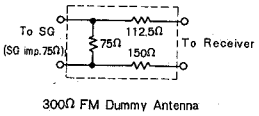


Fig. 1 (Abb. 1)

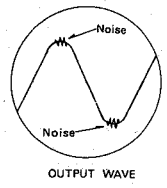


Fig. 2

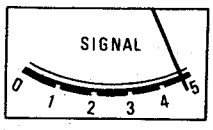


Fig. 3

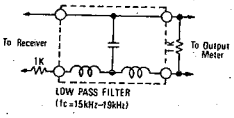


Fig. 4

ALIGNMENT INSTRUCTIONS.....READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Notes :

1. Volume control ..... Minimum
2. Balanced transformer less switch 4CH
3. Other controls ..... Optional position
4. Maintain line voltage at rated voltage.
5. The adjustment should be started 1~2 minutes after setting the power switch to the ON position.
6. Before adjusting, I_{CQ} and DC unbalance adjusting volumes (VR801, 802, 803 and 804) as shown in Alignment Point Location.

	CIRCUIT	VTVM CONNECTION	ADJUSTMENT POINTS	REMARKS
	MAIN AMP ALIGNMENT			
1	DC Unbalance	Connect DC VTVM between test point **817** and test point **818**. (Left Front and Right Front channel)	VR801 (Left and Right Front)	Make sure that DC VTVM becomes 0 mV.
		Connect DC VTVM between test point **818** and test point **819**. (Left Rear and Right Rear channel).	VR802 (Left and Right Rear)	
2	I_{CQ}	Connect DC VTVM between test point **816** and test point **817**. (Left Front and Right Front channel)	VR803 (Left and Right Front)	Make adjustments so that the indication on DC VTVM becomes 1 mV.
		Connect DC VTVM between test point **819** and test point **820**. (Left Rear and Right Rear channel)	VR804 (Left and Right Rear)	

Notes :

1. Volume control ..... Maximum (AM-RF)
   Minimum (AM-IF, FM-IF)
   Variable (FM-RF)
2. Bass and treble control ..... Center
3. Band selector switch ..... AM
   FM-Auto (FM-RF, FM-IF)
4. Loudness switch ..... OFF
5. Balanced transformer less switch 4CH
6. Tape-monitor switch ..... Source
7. Mode switch ..... Mono
8. Maintain line voltage at rated voltage.
9. Output of signal generator should be no higher than necessary to obtain an output reading.

	SIGNAL GENERATOR or SWEEP GENERATOR CONNECTION	SIGNAL GENERATOR or SWEEP GENERATOR FREQUENCY	RECEIVER DIAL SETTING [DISTANCE]	INDICATOR (VTVM or SCOPE)	ADJUSTMENT POINTS	REMARKS
	AM ALIGNMENT					
3	High side through 0.001μF to antenna terminal, Common to chassis.	455 kHz (20 kHz Sweep)	Point of non-interference.	Connect vert. amp. of scope to **TP201**.	T201 (1st IFT) T202 (2nd IFT)	Adjust for maximum output.
4	Fashion loop of several turns of wire and radiate signal into loop of receiver.	550 kHz (30% Mod. with 400 Hz)	550 kHz [18.9 mm (3/4")]	Connect meter to speakers terminal of set.	L202 (OSC Coil) L201 (ANT Coil)	Adjust for maximum output. Adjust L201 by moving coil bobbin along ferrite core.
5	Fashion loop of several turns of wire and radiate signal into loop of receiver.	1500 kHz (30% Mod. with 400 Hz)	1500 kHz [158.1 mm (6 7/32")]	Connect meter to speakers terminal of set.	CT5 (OSC Trimmer) CT4 (ANT Trimmer)	Adjust for maximum output. Repeat steps (4) and (5).
	FM-IF ALIGNMENT					
6			Point of non-interference.	Connect vert. amp. of scope to speaker terminals of set.	T101 (DISCRI IFT) (P)	Adjust for maximum output noise.
7			Point of non-interference	Connect DC VTVM between **TP101** and **304** terminal.	T102 (DISCRI IFT) (S)	Make sure that DC VTVM becomes 0V.
	FM-RF ALIGNMENT					
8	Connect to FM antenna terminal through FM dummy antenna. (Refer to fig. 1)	90 MHz (100% Mod. with 400 Hz)	90 MHz [20.7 mm (27/32")]	Output meter across speaker terminals.	L6 (FM OSC Coil) * L4 (FM DET Coil) L2 (FM ANT Coil)	Adjust for maximum output.
9	Connect to FM antenna terminal through FM dummy antenna. (Refer to fig. 1)	106 MHz (100% Mod. with 400 Hz)	106 MHz [147.2 mm (5 25/32")]	Output meter across speaker terminals.	CT3 (FM OSC Trimmer) CT2 (FM DET Trimmer) CT1 (FM ANT Trimmer)	Adjust for maximum output. Repeat steps (8) and (9).
	* Use six cornered alignment tool for aligning FM OSC coil (L6).					
	FM-MONO DISTORTION ALIGNMENT					
10	Connect to FM antenna terminal through FM dummy antenna.	98 MHz (100% Mod. with 400 Hz) Output 72 dB	98 MHz	Connect distortion meter to speaker terminals.	T101 (FM DISCRI IFT) (P)	Adjust for minimum distortion.

	SIGNAL GENERATOR CONNECTION	SIGNAL GENERATOR FREQUENCY	RECEIVER DIAL SETTING	INDICATOR (DC VTVM or SCOPE)	ADJUSTMENT POINTS	REMARKS
	MUTING IFT and SIGNAL METER ALIGNMENT					
11	Connect to FM antenna terminal through FM dummy antenna.	98 MHz (30% Mod. with 400 Hz) Output 17~22 dB	98 MHz	Connect scope to speaker terminals.	Tuning control of set.	Adjust symmetrical curve. (Refer to fig. 2) Keep to this condition.
12	Connect to FM antenna terminal through FM dummy antenna.	98 MHz (30% Mod. with 400 Hz) Output 72 dB	98 MHz	Signal meter of set.	T103 (Muting IFT) (P) T104 (Muting IFT) (S)	Adjust for maximum indication.
13	Connect to FM antenna terminal through FM dummy antenna.	98 MHz (30% Mod. with 400 Hz) Output 72 dB	98 MHz	Signal meter of set.	VR101 (Meter indication)	Refer to figure 3.
	MUTING LEVEL ALIGNMENT					
	Note : Mode switch to STEREO.					
14	Connect to FM antenna terminal through FM dummy antenna.	98 MHz (100% Mod. with 400 Hz) Output 28 dB	98 MHz	Output meter or speaker across speaker terminals.	VR102 (Muting Level)	Adjust so that output can be obtained.

Notes :

Stereo-modulator ..... Connect stereo-modulator output to EXT. MOD. terminal of signal generator. Internal OSC 1 kHz.
Pilot signal modulation 10%.
Signal generator ..... Frequency approximately 98 MHz. Output level 72 dB. Modulation mode to FM.

1. Band selector ..... FM-Auto
2. Bass and treble control ..... Center
3. Balanced transformer less switch 4CH
4. Mode switch ..... Stereo
5. Maintain line voltage at rated voltage.
6. Loudness switch ..... OFF
7. Tape monitor switch ..... Source
8. Dummy load 8Ω

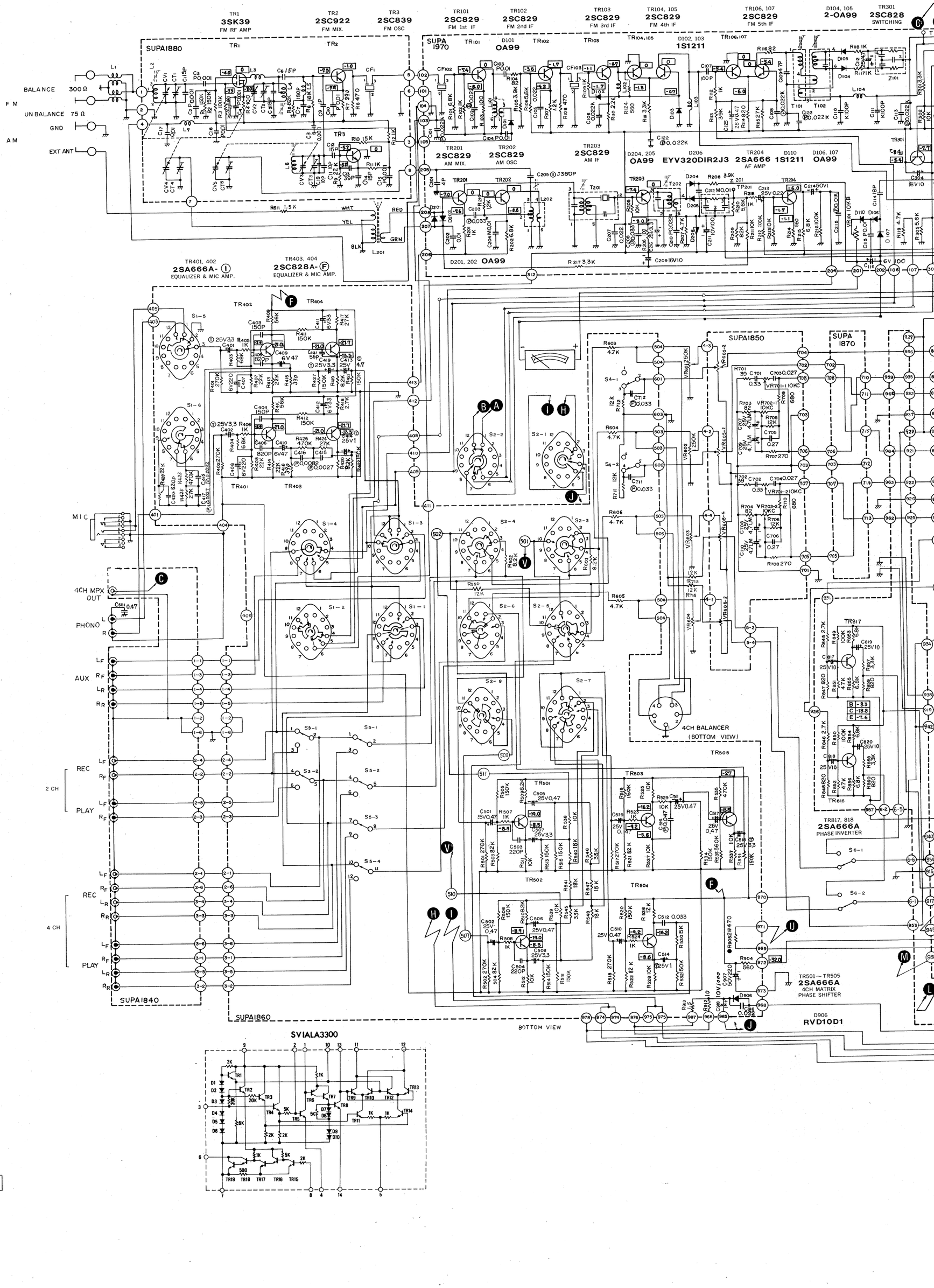
	SIGNAL GENERATOR CONNECTION	STEREO MODULATOR MODE and MOD. RATE	INDICATOR (VTVM or SCOPE)	ADJUSTMENT POINTS	REMARKS
	19 kHz COIL and PHASE ALIGNMENT				
15	FM antenna terminal through dummy antenna.	Pilot signal to ON.	Connect scope to **TP301**, Common to chassis.	T301 (19 kHz Coil)	Adjust for maximum output.
16	FM antenna terminal through dummy antenna.	Pilot signal to ON. L (or R) 30% Mod.	Connect scope to speaker terminals.	T302 (38 kHz Coil) (Phase Alignment)	Adjust for minimum right (or left) output.
	SEPARATION ALIGNMENT				
17	FM antenna terminal through dummy antenna.	L (and R) 30% Mod.	Output meter across speaker terminals through low pass filter. (Refer to fig. 4)	VR301 (Separation)	Adjust for minimum right (and left) output.

■ FM-RF ALIGNMENT INSTRUCTIONS ..... Only set for Germany

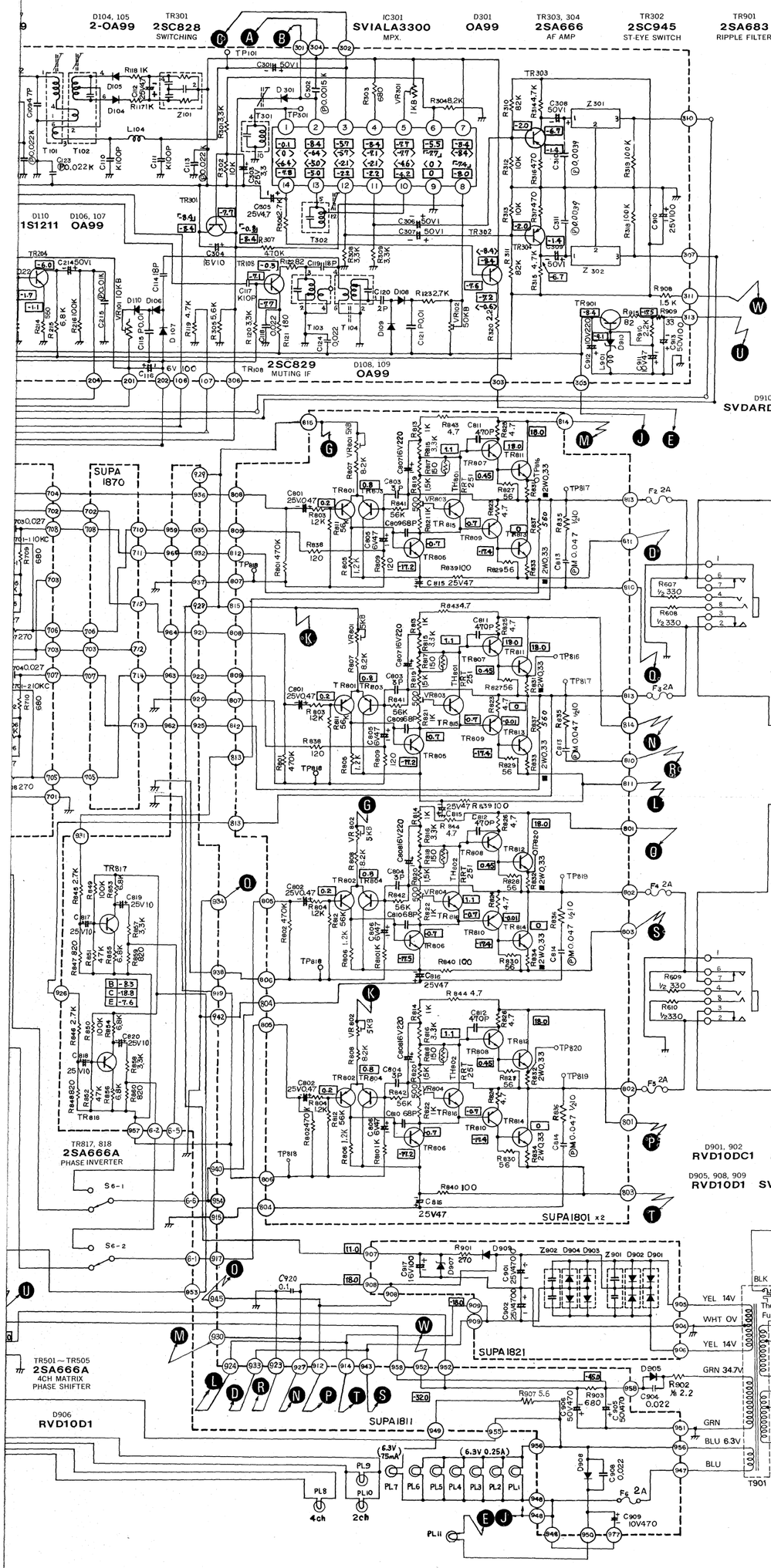
ABGLEICHANWEISUNGEN.....VOR DEM ABGLEICH SORGFÄLTIG DURCHLESEN					
MESSENDER SCHALTUNG	MESSENDER FREQUENZ	SKALENZEIGER-EINSTELLUNG DES EMPFÄNGERS [ABSTAND]	ANGEIGE (RÖHRENVOLTMETER ODER OSZILLOGRAPH)	ABGLEICH	BEMERKUNGEN
FM HF-ABGLEICH					
Anschluß an den FM Antennenanschluß über die künstliche. FM Antenne. (Vgl. Abb. 1)	87.5 MHz (100% Mod. bei 400Hz)	87.5 MHz [0mm]	Output meter über Lautsprecher-schwingspule anschließen.	L6 (Oszillatorspule)	Auf max. Ausgang abgleichen.
〃	90 MHz (〃)	90 MHz	〃	L4 (Zwischenkreis) L2 (Antennenspule)	〃
〃	106 MHz (〃)	106 MHz [147.2 mm]	〃	CT3 (OSZ. Trimmer) CT2 (DET. Trimmer) CT1 (ANT. Trimmer)	〃

Schematic Diagram .....Model SA-5400X

(This schematic diagram may be modified at any time with the



be modified at any time with the development of new technology.)

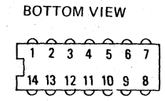


Notes:

1. S1-1 ~ S1-6: Selector switch in **"AM"** position.
   AM ⇔ FM AUTO ⇔ PHONO ⇔ MIC ⇔ AUX
2. S2-1 ~ S2-8: Mode switch in **"MONO"** position.
   MONO ⇔ STEREO ⇔ MATRIX 1 (RM) ⇔
   MATRIX 2 ⇔ 4CH DISCRETE
3. S3-1, S3-2: 2CH tape-monitor switch in **"SOURCE"** position.
4. S4-1, S4-2: Loudness switch (Only Front Channel) in **"OFF"** position.
5. S5-1 ~ S5-4: 4ch Tape-monitor switch in **"SOURCE"** position.
6. S6-1, S6-2: Balanced transformer less switch in **"4CH"** position.
7. S7: Power source switch in **"OFF"** position.
8. S8-1 ~ S8-4: Voltage selector switch in "110V" position
   110V ⇔ 120V ⇔ 220V ⇔ 240V
9. DC voltage measurements are taken with DC VTVM from chassis ground.
   - ▭..... FM/AM No signal condition.
   - 〈 〉..... FM stereo signal reseption
   - ⌐ ¬..... FM muting to "OFF" position (Mode switch to "MONO" position)

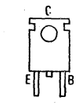
VR101 . . . FM Meter Adjustment
VR102 . . . FM Muting Level Adjustment
VR301 . . . Separation Adjustment
VR601 ~ VR604 . . . Channel Level Control
VR605-1 ~ VR605-4 . . . Main Volume Control
VR701-1, VR701-2 . . . Treble Control (Only Front channel)
VR702-1, VR702-2 . . . Bass Control (Only Front Channel)
VR801 (X2) . . . DC Unbalance Adjustment (Front Channe
VR802 (X2) . . . DC Unbalance Adjustment (Rear Channel)
VR803 (X2) . . . IcQ Adjustment (Front Channel)
VR804 (X2) . . . IcQ Adjustment (Rear Channel)

BOTTOM VIEW

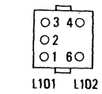


SVIALA3300

3SK39

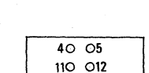


2SD331



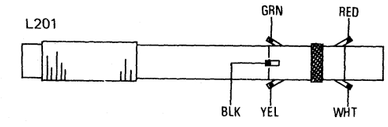
T101 ~ T104
T202

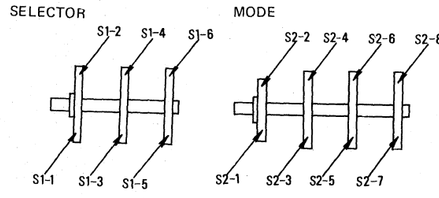
2SC839, 2SC828, 2SC828A-F, 2SC945, 2SA666, 2SA666A, 2SC829
2SA666A-1, 2SA666A-AD, 2SA720, 2SC1318, 2SC922, 2SA683



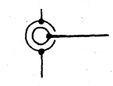
T301 T302

T201

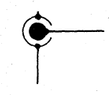




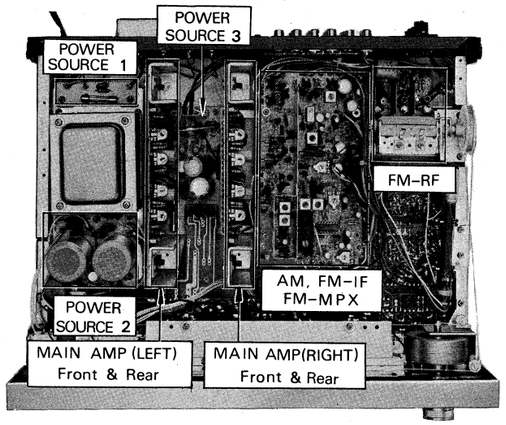
Jack (Open Type) : Whether plug is inserted or not, jack is kept open.



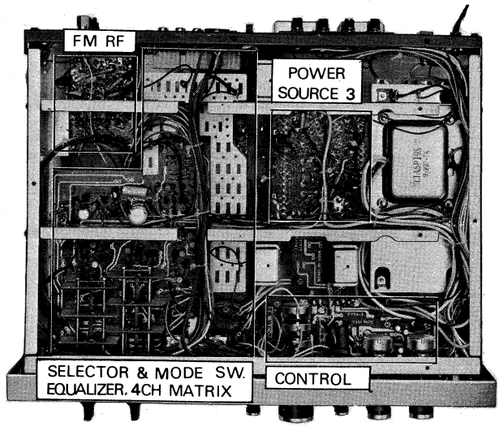
Jack (Shorted Type) : When plug is not inserted, jack is kept in shorted condition.



■ LOCATION OF CIRCUIT BOARDS

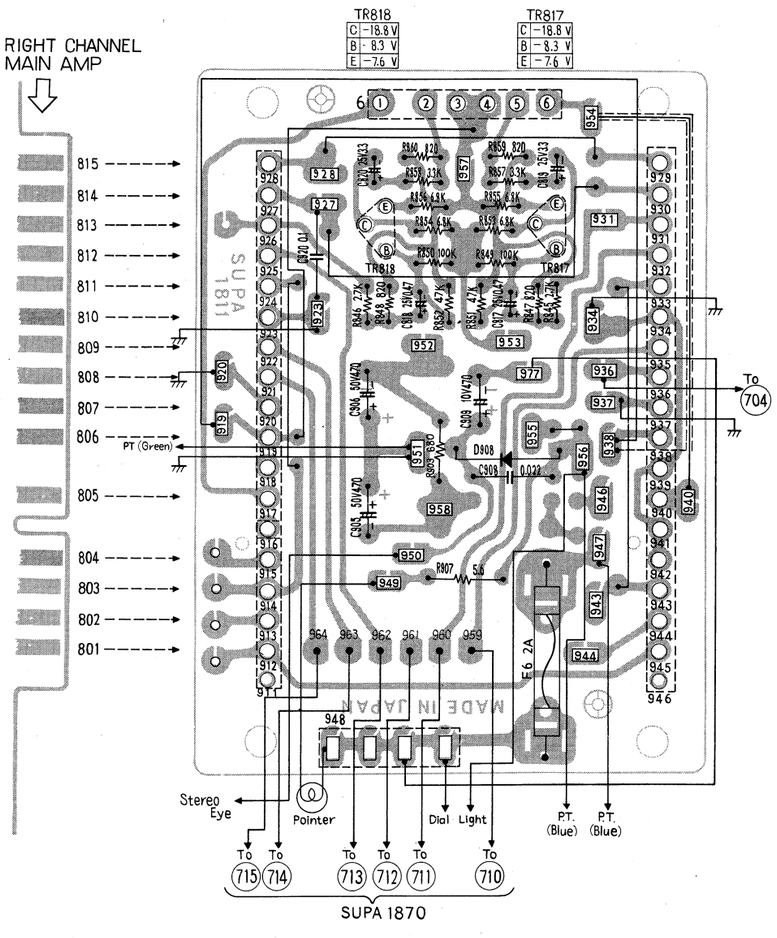


Top View

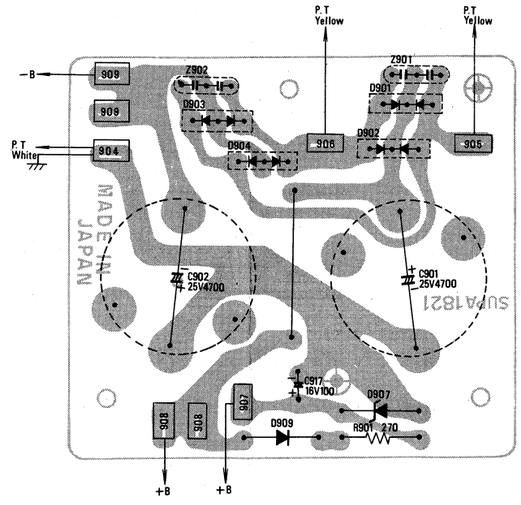


Bottom View

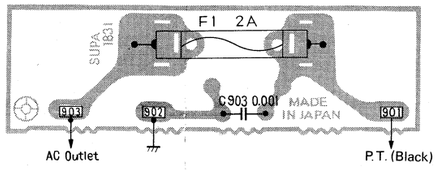
POWER SOURCE 3 Circuit Board


RIGHT CHANNEL MAIN AMP
TR818 C -18.8 V B -8.3 V E -7.6 V
TR817 C -18.8 V B -8.3 V E -7.6 V
SUPA 1811
MADE IN JAPAN
PT (Green)
Stereo Eye
Pointer
Dial Light
P.T. (Blue)
P.T. (Blue)
To 715 To 714 To 713 To 712 To 711 To 710
To 704
SUPA 1870

POWER SOURE 2 Circuit Board



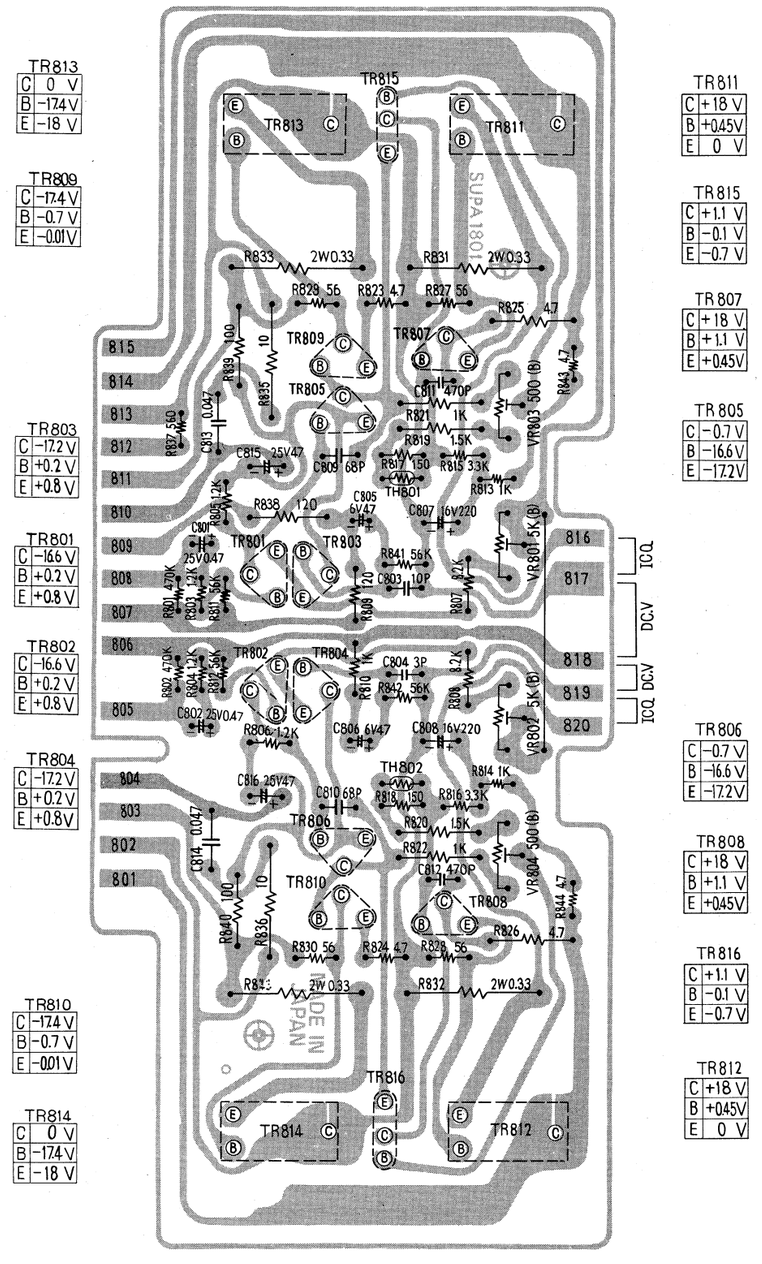
POWER SOURCE 1 Circuit Board



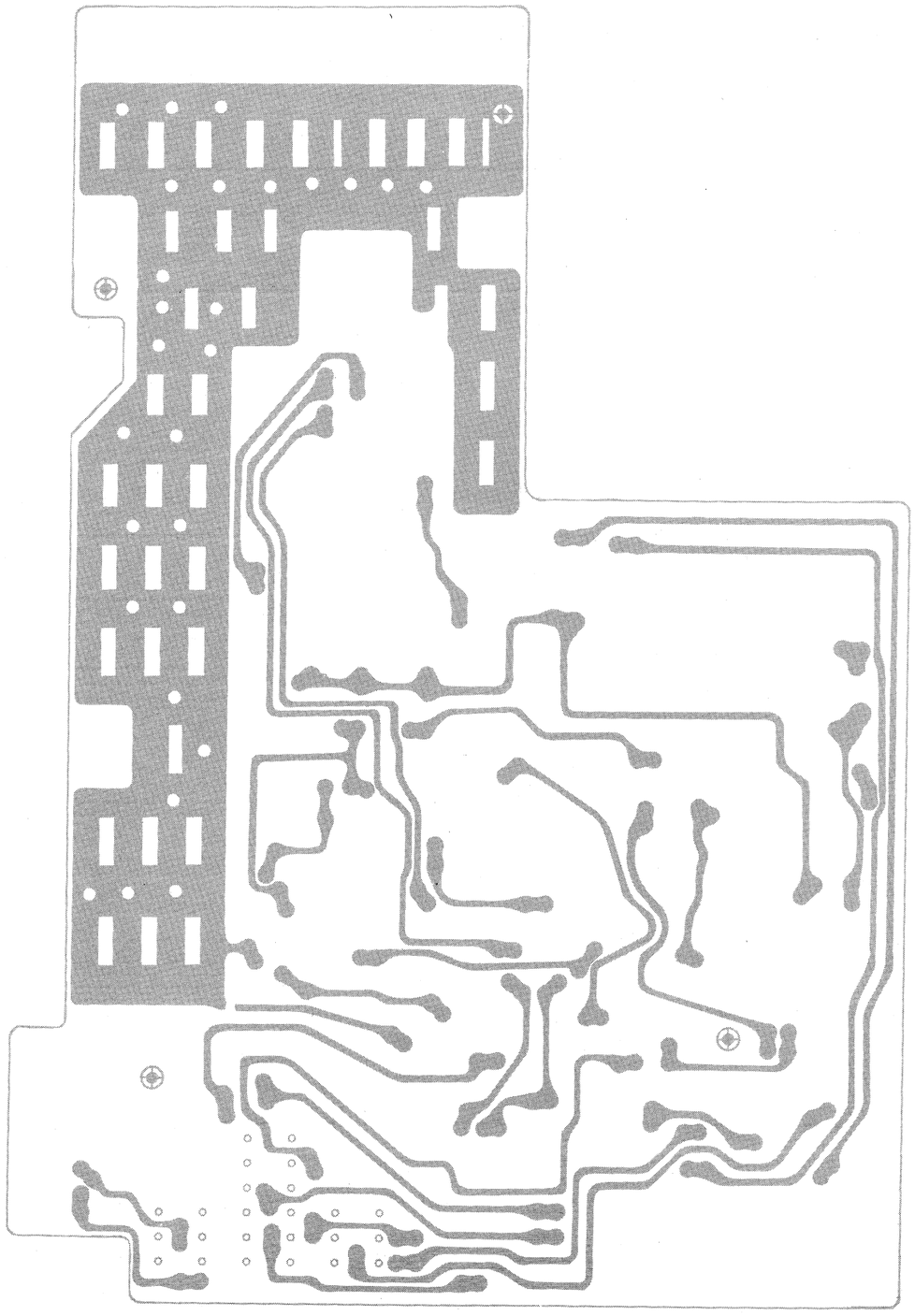
MAIN AMP. Circuit Board Right (Front & Rear) Channel

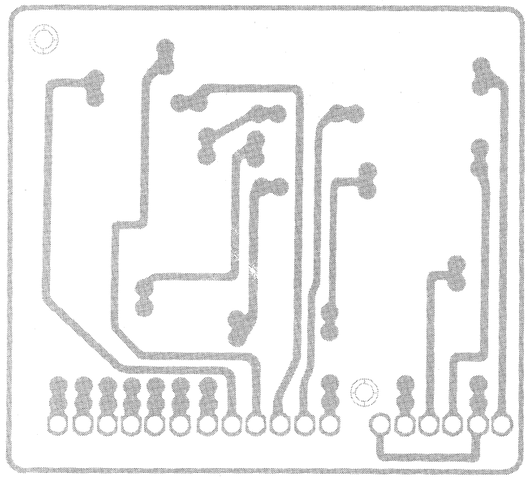
Earth Line

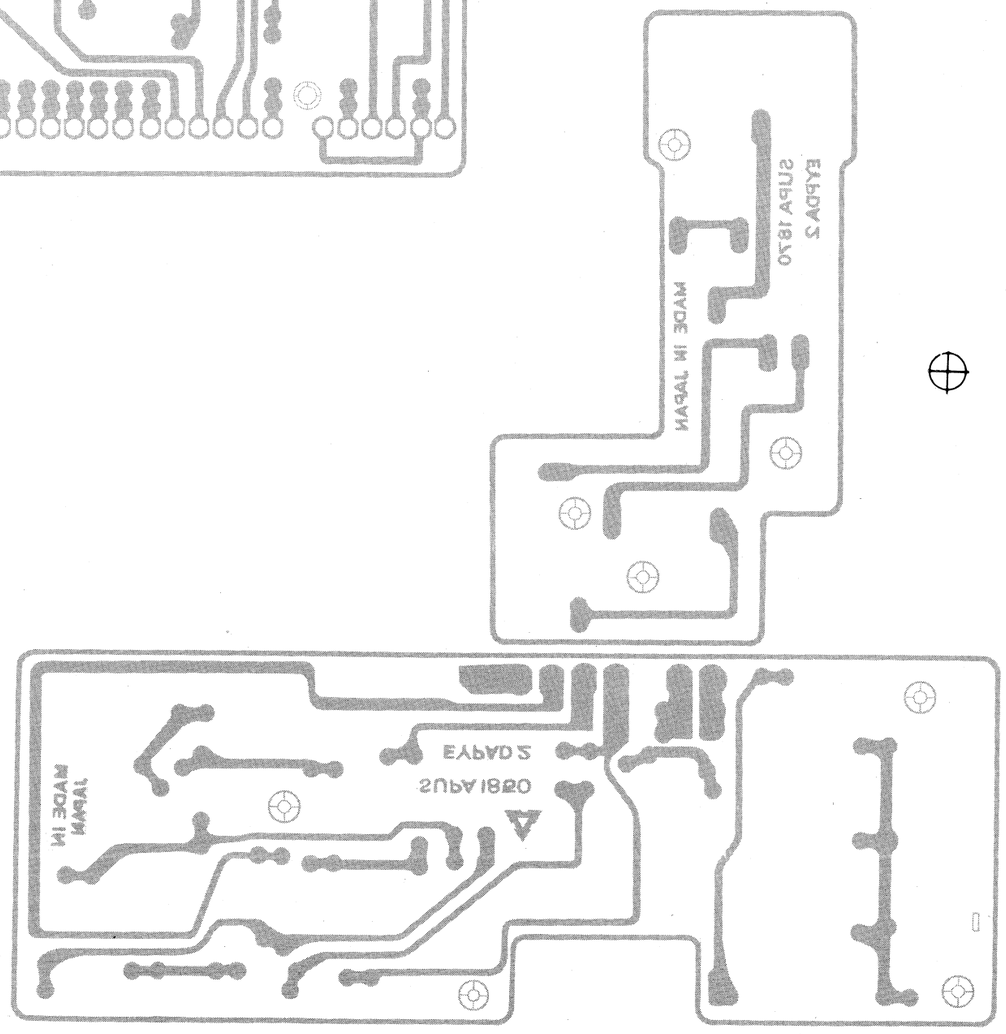
Left channel is same as Right channel



Printed Circuit View on Top of P.C.B.

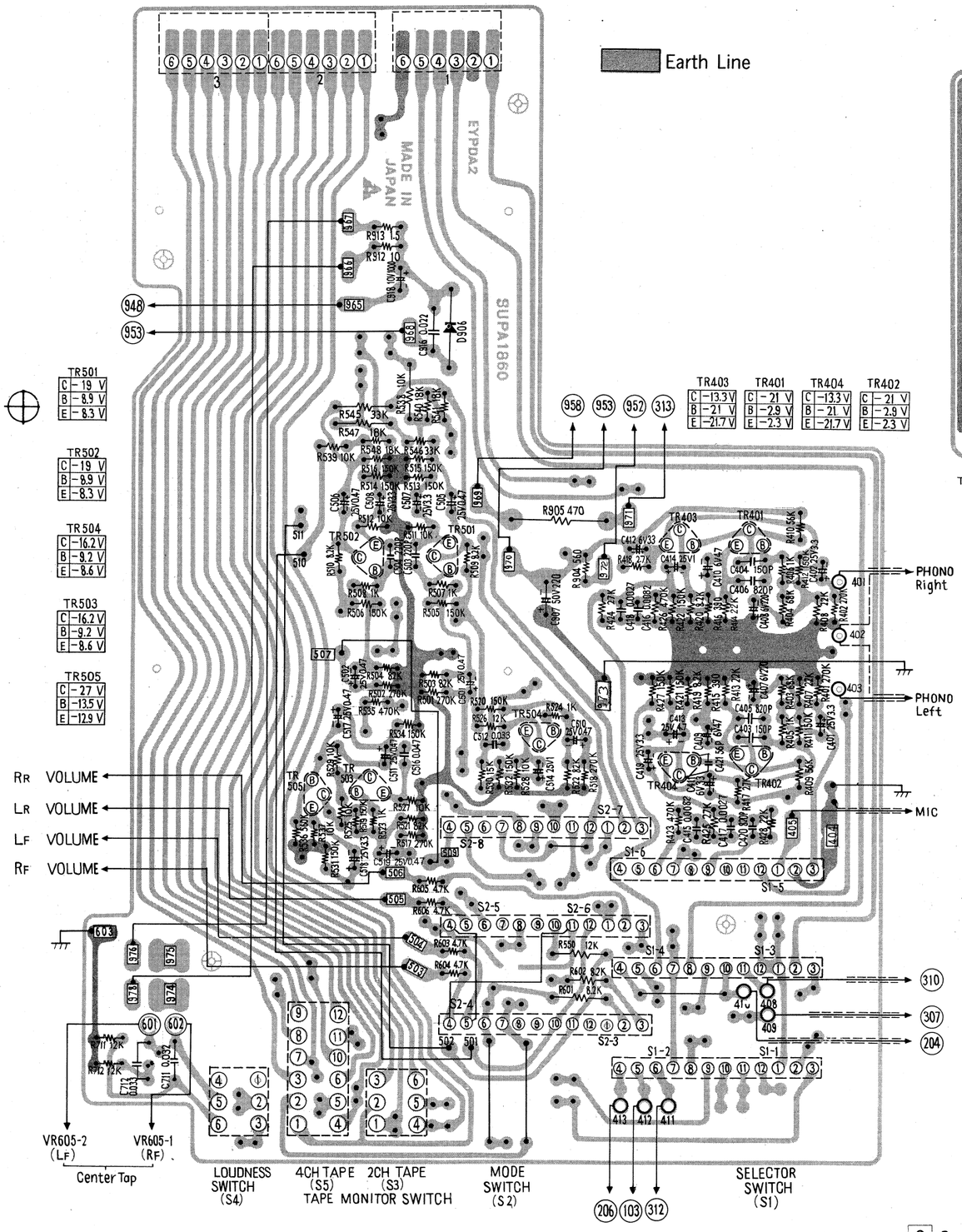






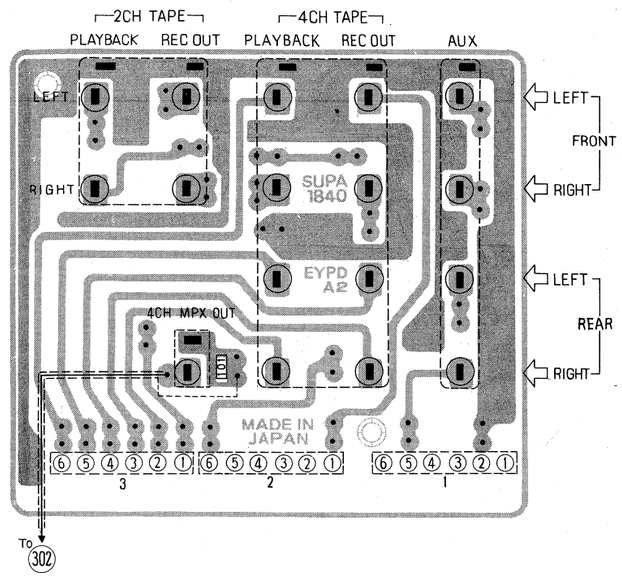
SELECTOR, MODE SW, EQUALIZER & 4CH MATRIX Circuit Board

Bottom View


Earth Line
MADE IN JAPAN
EYPDA2
SUPA1860
TR501 C -19 V B -8.9 V E -8.3 V
TR502 C -19 V B -9.9 V E -8.3 V
TR504 C -16.2 V B -9.2 V E -8.6 V
TR503 C -16.2 V B -9.2 V E -8.6 V
TR505 C -27 V B -13.5 V E -12.9 V
TR403 C -13.3 V B -21 V E -21.7 V
TR401 C -21 V B -2.9 V E -2.3 V
TR404 C -13.3 V B -21 V E -21.7 V
TR402 C -21 V B -2.9 V E -2.3 V
R905 470
PHONO Right
PHONO Left
MIC
RR VOLUME
LR VOLUME
LF VOLUME
RF VOLUME
VR605-2 (LF)
VR605-1 (RF)
Center Tap
LOUDNESS SWITCH (S4)
4CH TAPE (S5) 2CH TAPE (S3) TAPE MONITOR SWITCH
MODE SWITCH (S2)
SELECTOR SWITCH (S1)

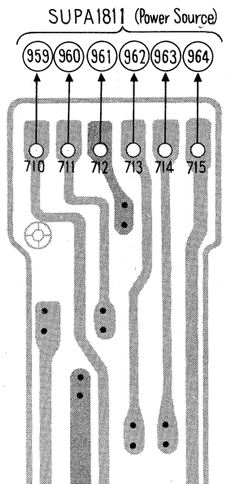
INPUT TERMINAL Circuit Board

Bottom View



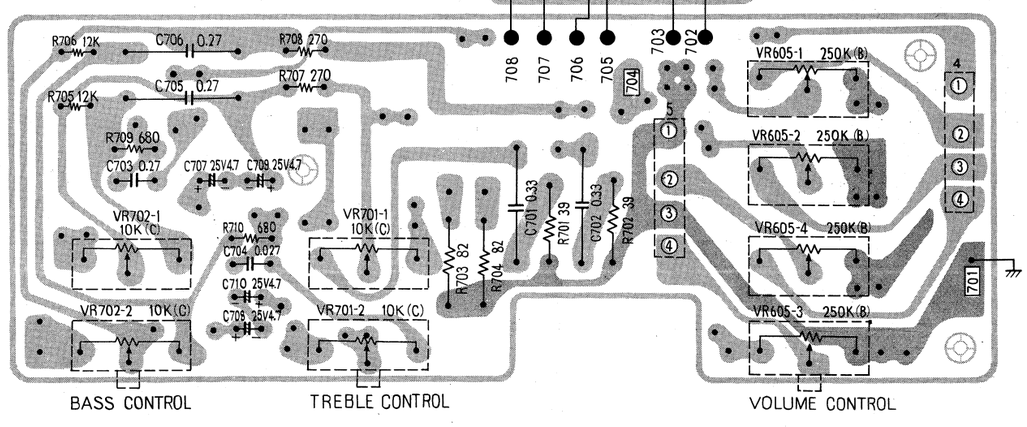
CONTROL & POWER SOURCE 3 CONNECTING Circuit

Bottom View



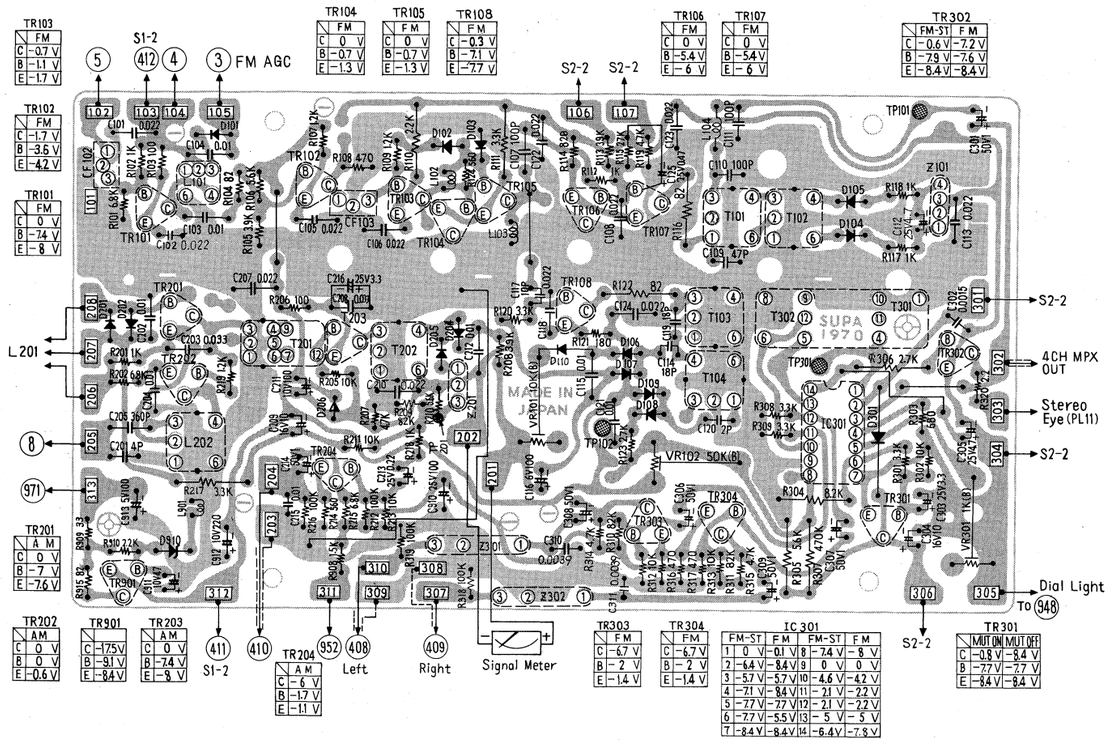
CONTROL Circuit Board

Bottom View



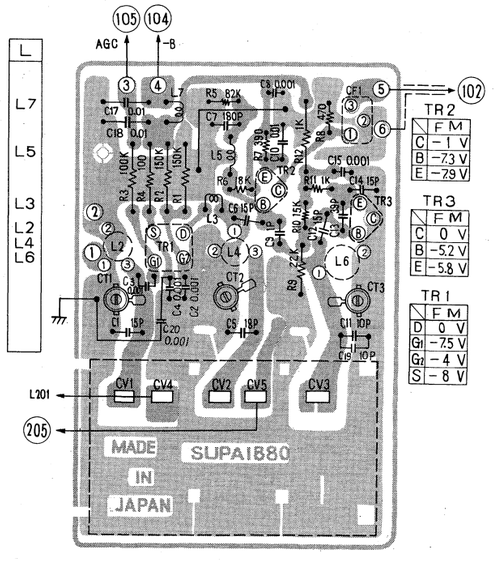
AM/FM-IF & FM-MPX Circuit Board

Earth Line


TR103 FM C -0.7 V B -1.1 V E -1.7 V
TR104 FM C 0 V B -0.7 V E -1.3 V
TR105 FM C 0 V B -0.7 V E -1.3 V
TR108 FM C -0.3 V B -7.1 V E -7.7 V
TR106 FM C 0 V B -5.4 V E -6 V
TR107 FM C 0 V B -5.4 V E -6 V
TR302 FM-ST F M C -0.6 V -7.2 V B -7.9 V -7.6 V E -8.4 V -8.4 V
TR102 FM C -1.7 V B -3.6 V E -4.2 V
TR101 FM C 0 V B -7.4 V E -8 V
TR201 A M C 0 V B -7 V E -7.6 V
TR202 AM C 0 V B 0 V E -0.6 V
TR901 C -1.75 V B -9.1 V E -8.4 V
TR203 AM C 0 V B -7.4 V E -8 V
TR204 A M C -6 V B -1.7 V E -1.1 V
TR303 FM C -6.7 V B -2 V E -1.4 V
TR304 FM C -6.7 V B -2 V E -1.4 V
TR301 MUTING MUTING C -8.4 V -8.4 V B -7.7 V -7.7 V E -8.4 V -8.4 V
IC301
FM-ST F M FM-ST F M
1 0 V -0.1 V 8 -7.4 V -8 V
2 -6.4 V -8.4 V 9 0 V 0 V
3 -5.7 V -5.7 V 10 -4.6 V -4.2 V
4 -7.1 V -8.4 V 11 -2.1 V -2.2 V
5 -7.7 V -7.7 V 12 -2.1 V -2.2 V
6 -7.7 V -5.5 V 13 -5 V -5 V
7 -8.4 V -8.4 V 14 -6.4 V -7.8 V
S1-2
FM AGC
Left
Right
Signal Meter
Dial Light
To 948
4CH MPX OUT
Stereo Eye (PL11)
S2-2
L201
SUPA 1970
MADE IN JAPAN

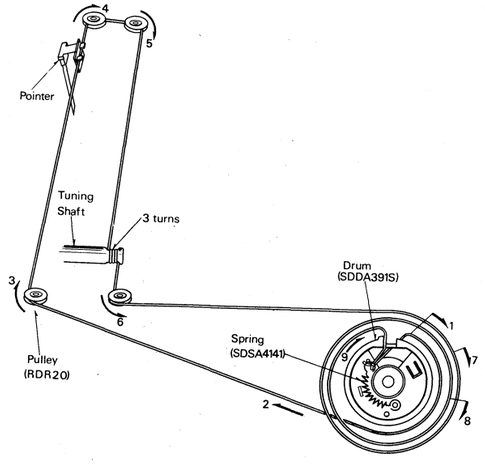
T & L	L101 L102 L103 L104 T101 T102 T302 T301	
	L202 T201 T202 T103 T104	
TR & D	D201. D202. TR101, TR201. D101, TR102 TR203. TR103, TR104. D102. D103. TR105 TR108. TR106. TR107. D104. D105	
	TR901 D910 TR202 D206. TR204 D205 D204 D110 D106. D107. D108. D109. TR303 TR304 IC301 D301. TR301 TR302	

FM-RF Circuit Board



■ DIAL CORD INSTALLATION GUIDE

1. Dial cord length is 66-7/8" (170 cm).
2. Tuning gang is positioned at maximum capacitor.



■ SERVICE AID

How to install and remove the connection socket

1. Insert the lead wire into the lead wire pin clamp. (See fig. 1-①)
2. Bend the tabs of the lead wire pin clamp using radio pliers to attach the lead wire. (See fig. 1-② and ③)
3. Insert the lead wire pin clamp, to which the lead wire has been attached, into the connection socket. (See fig. 2)
4. In order to remove the lead wire pin clamp from the connection socket, insert a eyeleteer into the socket hole and touch it to the lead wire pin clamp stop. (See fig. 3-①)
5. Bend the stop inward toward the lead wire pin clamp and pull out the lead wire pin clamp. (See fig. 3-②)

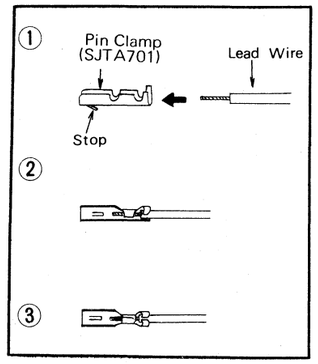


Fig. 1

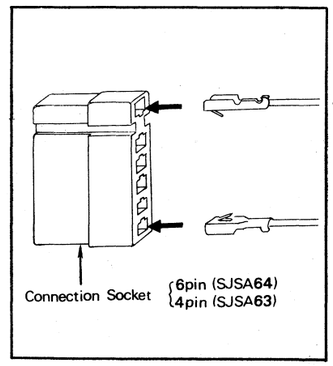


Fig. 2

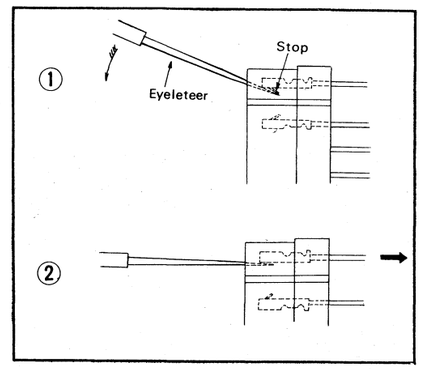
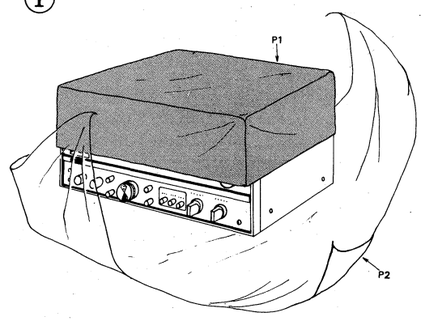
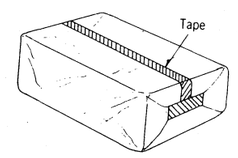
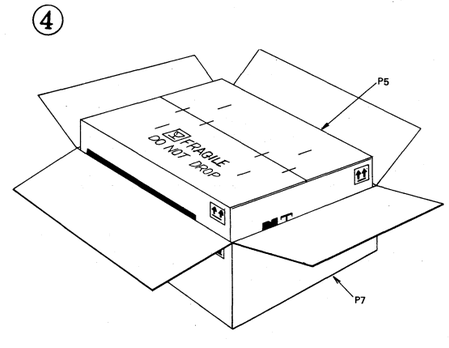


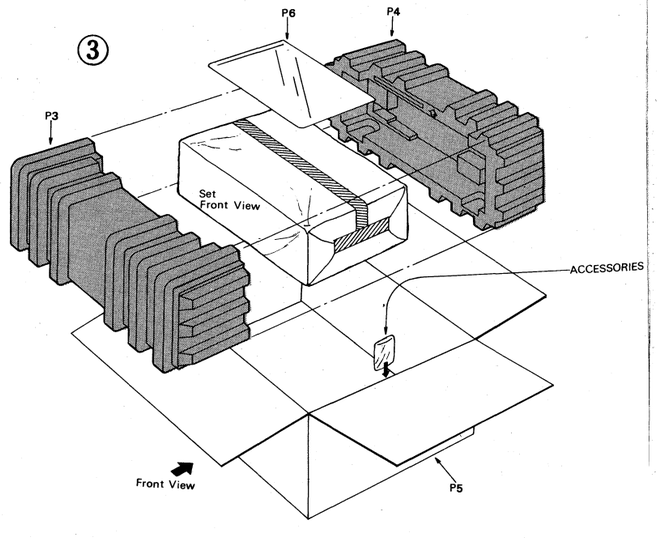
Fig. 3

■ PACKINGS

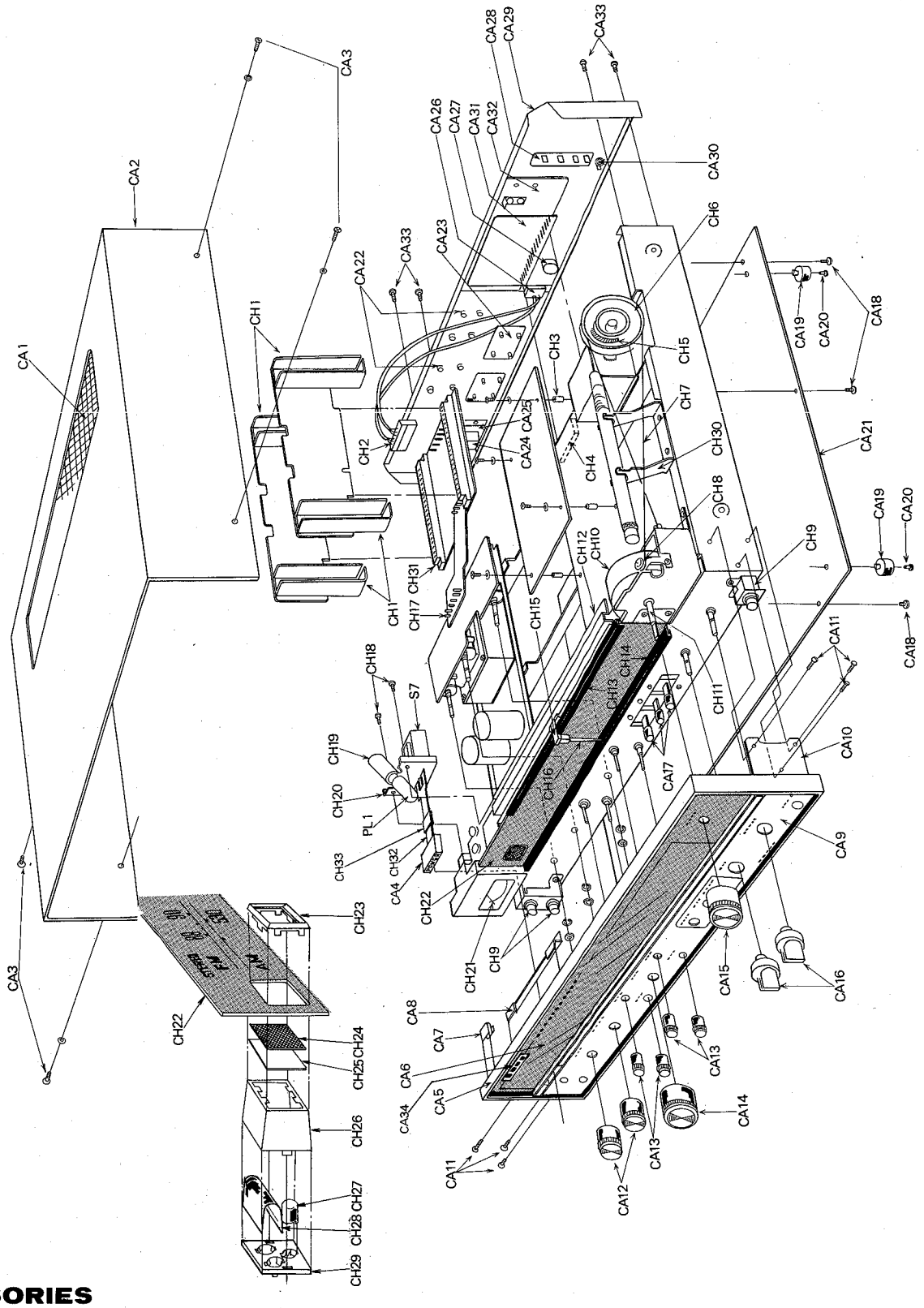




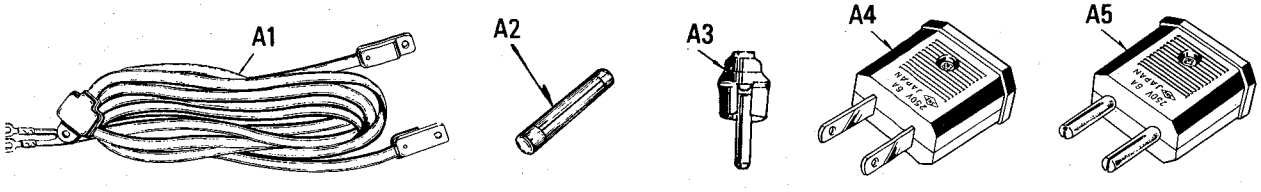




CABINET & CHASSIS PARTS LOCATION



I ACCESSORIES



■ REPLACEMENT PARTS LIST

NOTES:

1. Part numbers are indicated on most mechanical parts. Please use this part number, for parts orders.
2. Ⓝ indicates the New Parts.
3. **X-Z** rank: **X** rank parts will cover 80% of repair needs. **X+Y** rank parts will cover 95% of repair needs. **Z** rank parts are less necessary.

Bemerkungen:

1. Die meisten mechanischen Teile sind mit Teilnummern versehen. Bitte geben Sie diese Nummern an, sofern die Teile keine Bezugsnummern haben.
2. Ⓝ bedeutet: Neue Teile.
3. Gruppen **X-Z**: Teile der Gruppe **X** machen 80% des Erstzteibedarfes aus. Teile der Gruppen **X** und **Y** machen 95% des Ersatzteilbedarfes aus. Teile der Gruppe **Z** werden seltener benotigt.

Ref. No.	Part No.	Description	Per Set (Pcs.)	Remarks
		INTEGRATED CIRCUIT		
IC301	SVIALA3300	MPX Circuit	1	X
		TRANSISTORS		
TR1	3SK39Q	FM RF Amplifier [FET]	1	X
TR2	2SC922M	FM Mixer	1	X
TR3	2SC839H	FM Oscillator	1	X
TR101,102, 103,104, 105,106, 107,108, 201,202, 203	2SC829C	FM 1st~5th IF Amp., Muting IF Amp. & AM MIX, OSC, IF Amp.	11	X
TR204,303, 304,	2SA666Q	AM & FM AF Ampifier	3	X
TR301 815 (×2) 816 (×2)	2SC828R	Muting Switching, Thermal Compensation	5	X
TR302	2SC945MAP	Stereo Eye Switching	1	X
TR401,402	2SA666A-ⒿR	Equalizer Amplifier	2	X
TR403,404	2SC828A-ⒻR	Equalizer Amplifier	2	X
TR501,502 503,504, 505,817, 818	2SA666A-Q	4ch. Matrix, Phase Shifter & Phase Inverter	7	X
TR801(×2), 802(×2), 803(×2), 804(×2)	2SA666A-AD3	Differential Amp. [Main Amp.]	8	X
TR805(×2), 806(×2), 807(×2), 808(×2)	2SC1318R	Driver Amplifier	8	X
TR809(×2) 810(×2)	2SA720R	Driver Amplifier	4	X
TR811(×2) 812(×2), 813(×2), 814(×2)	2SD331E	Power Amplifier	8	Ⓝ X
TR901	2SA683Q	Ripple Filter	1	X
		DIODES and VARIATITE		
D101,106,107, 108,109,201, 202,204,205, 301	OA99	AGC, Meter DET, Muting DET, AM AGC, AM DET, Muting Switching	10	X
D102,103,110	1S1211	FM IF Amp. Bias Diode	3	X
D104,105	2-OA99	FM Discriminator	1 pair	X
D901,902	RVD10DC1	Rectifier	2	X
D903,904	RVD10DC1R	Rectifier	2	X
D905,906,908, 909	RVD10D1	Rectifier & Noise Cancel	4	X
D907	SVDEQA01-11R	Zener, 11V, Noise Cancel	1	X
D910	SVDARD10E	Zener, 9.5V, Voltage Stabilizer	1	Ⓝ X
D206	EYV320D1R2J3	Variatite, AOC	1	X
		COILS and TRANSFORMERS		
L1	SLAA4W1-2	Balun Coil	1	X
L2	SLAA4N9	FM Antenna Coil	1	X
L3	RLQY25S5	Choke Coil	1	X
L4	SLDA4N18	FM DET Coil	1	X
L5	RLQY15G5	Choke Coil	1	X
L6	SLOA4N9	FM OSC Coil	1	X
L7,102,103, 104,901	SLQX151-1Y	Choke Coil	5	Y
L101	RLI4L201	FM AGC Coil	1	X
L201	SLFA2E16	AM Antenna Coil	1	Ⓝ X
L202	SLOA2C5	AM OSC Coil	1	X
T101	SLIA4C54	FM DISCRI IF Transformer (P)	1	X
T102	SLIA4C56	FM DISCRI IF Transformer (S)	1	X
T103,104	SLIA4C24	FM Muting IF Transformer (P), (S)	2	X
T201	RLI7W105S-T	AM 1st IF Transformer	1	X
T202	RLI2C450	AM 2nd IF Transformer	1	X
T301,(T302)	SLMA1Z2-K	19kHz, 38kHz Pick-up Transformer	1	X
T901	SLTA5P20S-W	Power Transformer	1	Ⓝ X
		CERAMIC FILTERS		
CF1,102,103	RVFCF10M12CG	FM IF Circuit, Green (10.6MHz)	each 3	X
	RVFCF10M12CB	FM IF Circuit, Black (10.65MHz)		
	RVFCF10M12CR	FM IF Circuit, Red (10.7MHz)		
	RVFCF10M12CW	FM IF Circuit, White (10.75MHz)		
	RVFCF10M12CY	FM IF Circuit, Yellow (10.8MHz)		
		RESISTORS		
R907	ERD14TJ5R6	5.6Ω, 1/4W, ± 5%, Carbon	1	Y
R701,702	ERD14TJ390	39Ω, 1/4W, ± 5%, Carbon	2	Y
R116,122,703, 704	ERD14TJ820	82Ω, 1/4W, ± 5%, Carbon	4	Y
R4	ERD14TJ101	100Ω, 1/4W, ± 5%, Carbon	1	Y
R12,821(×2), 822(×2)	ERD14TJ102	1kΩ, 1/4W, ± 5%, Carbon	5	Y
R819(×2), 611 820(×2)	ERD14TJ152	1.5kΩ, 1/4W, ± 5%, Carbon	5	Y
R110	ERD14TJ222	2.2kΩ, 1/4W, ± 5%, Carbon	1	Y
R306	ERD14TJ272	2.7kΩ, 1/4W, ± 5%, Carbon	1	Y
R111,217	ERD14TJ332	3.3kΩ, 1/4W, ± 5%, Carbon	2	Y
R210,305	ERD14TJ562	5.6kΩ, 1/4W, ± 5%, Carbon	2	Y
R304,601,602,	ERD14TJ822	8.2kΩ, 1/4W, ± 5%, Carbon	3	Y
R538	ERD14TJ103	10kΩ, 1/4W, ± 5%, Carbon	1	Y
R550,713,714	ERD14TJ123	12kΩ, 1/4W, ± 5%, Carbon	3	Y
R547	ERD14TJ183	18kΩ, 1/4W, ± 5%, Carbon	1	Y
R545	ERD14TJ333	33kΩ, 1/4W, ± 5%, Carbon	1	Y
R3	ERD14TJ104	100kΩ, 1/4W, ± 5%, Carbon	1	Y
R1,2	ERD14TJ154	150kΩ, 1/4W, ± 5%, Carbon	2	Y
R307	ERD14TJ474	470kΩ, 1/4W, ± 5%, Carbon	1	Y
R913	ERD14VJ1R5	1.5Ω, 1/4W, ± 5%, Carbon	1	Y
R320	ERD14VJ2R2	2.2Ω, 1/4W, ± 5%, Carbon	1	Y
R912	ERD14VJ100	10Ω, 1/4W, ± 5%, Carbon	1	Y
R909	ERD14VJ330	33Ω, 1/4W, ± 5%, Carbon	1	Y
R104,915	ERD14VJ820	82Ω, 1/4W, ± 5%, Carbon	2	Y
R103,206	ERD14VJ101	100Ω, 1/4W, ± 5%, Carbon	2	Y
R809(×2)	ERD14VJ121	120Ω, 1/4W, ± 5%, Carbon	2	Y
R817(×2), 818(×2)	ERD14VJ151	150Ω, 1/4W, ± 5%, Carbon	4	Y
R121	ERD14VJ181	180Ω, 1/4W, ± 5%, Carbon	1	Y
R707,708	ERD14VJ271	270Ω, 1/4W, ± 5%, Carbon	2	Y
R7,415,416	ERD14VJ391	390Ω, 1/4W, ± 5%, Carbon	3	Y
R8,108,316, 317	ERD14VJ471	470Ω, 1/4W, ± 5%, Carbon	4	Y
R124,214	ERD14VJ561	560Ω, 1/4W, ± 5%, Carbon	2	Y
R303,709,710, 903	ERD14VJ681	680Ω, 1/4W, ± 5%, Carbon	4	Y
R114,847,848, 859,860	ERD14VJ821	820Ω, 1/4W, ± 5%, Carbon	5	Y
R11,102,109, 112,117,118, 201,218,405, 406,507,508, 523,524, 810(×2), 813(×2), 814(×2)	ERD14VJ102	1kΩ, 1/4W, ± 5%, Carbon	20	Y
R107,219, 803(×2), 804(×2), 805(×2), 806(×2)	ERD14VJ122	1.2kΩ, 1/4W, ± 5%, Carbon	10	Y
R908	ERD14VJ152	1.5kΩ, 1/4W, ± 5%, Carbon	1	Y
R910	ERD14VJ222	2.2kΩ, 1/4W, ± 5%, Carbon	1	Y

Ref. No.	Part No.	Description	Per Set (Pcs.)	Remarks
R123,417,418, 845,846	ERD14VJ272	2.7kΩ, 1/4W, ± 5%, Carbon	5	Y
R120,301,308, 309,857,858, 815(×2), 816(×2)	ERD14VJ332	3.3kΩ, 1/4W, ± 5%, Carbon	10	Y
R105,208	ERD14VJ392	3.9kΩ, 1/4W, ± 5%, Carbon	2	Y
R119,207,314, 315,603,604, 605,606	ERD14VJ472	4.7kΩ, 1/4W, ± 5%, Carbon	8	Y
R106	ERD14VJ562	5.6kΩ, 1/4W, ± 5%, Carbon	1	Y
R101,202,215, 853,854,855, 856	ERD14VJ682	6.8kΩ, 1/4W, ± 5%, Carbon	7	Y
R419,420,509, 510,807(×2), 808(×2)	ERD14VJ822	8.2kΩ, 1/4W, ± 5%, Carbon	8	Y
R205,211,213, 302,312,313, 511,512,525, 527,528,529, 537,539	ERD14VJ103	10kΩ, 1/4W, ± 5%, Carbon	14	Y
R526,705,706, 711,712	ERD14VJ123	12kΩ, 1/4W, ± 5%, Carbon	5	Y
R10,530	ERD14VJ153	15kΩ, 1/4W, ± 5%, Carbon	2	Y
R6,540,541, 548	ERD14VJ183	18kΩ, 1/4W, ± 5%, Carbon	4	Y
R 9 ,407,408, 428,	ERD14VJ223	22kΩ, 1/4W, ± 5%, Carbon	4	Y
R413,414	ERD14VSJ223	22kΩ, 1/4W, ± 5%, Carbon	2	Y
R115,424,425	ERD14VJ273	27kΩ, 1/4W, ± 5%, Carbon	3	Y
R546	ERD14VJ333	33kΩ, 1/4W, ± 5%, Carbon	1	Y
R113	ERD14VJ393	39kΩ, 1/4W, ± 5%, Carbon	1	Y
R851,852	ERD14VSJ473	47kΩ, 1/4W, ± 5%, Carbon	2	Y
R811(×2), 812(×2), 841(×2), 842(×2)	ERD14VJ563	56kΩ, 1/4W, ± 5%, Carbon	8	Y
R409,410	ERD14VSJ563	56kΩ, 1/4W, ± 5%, Carbon	2	Y
R403,404	ERD14VSJ683	68kΩ, 1/4W, ± 5%, Carbon	2	Y
R5,209,310, 311,503,504, 521,522	ERD14VJ823	82kΩ, 1/4W, ± 5%, Carbon	8	Y
R212,216,318, 319	ERD14VJ104	100kΩ, 1/4W, ± 5%, Carbon	4	Y
R849,850	ERD14VSJ104	100kΩ, 1/4W, ± 5%, Carbon	2	Y
R421,422,427, 505,506,513, 514,515,516, 519,520,531, 532,534	ERD14VJ154	150kΩ, 1/4W, ± 5%, Carbon	14	Y
R411,412	ERD14VSJ154	150kΩ, 1/4W, ± 5%, Carbon	2	Y
R401,402,501, 502,517,518	ERD14VJ274	270kΩ, 1/4W, ± 5%, Carbon	6	Y
R423,426,535, 801(×2), 802(×2),	ERD14VJ474	470kΩ, 1/4W, ± 5%, Carbon	7	Y
R536	ERD14VJ564	560kΩ, 1/4W, ± 5%, Carbon	1	Y
R823(×2), 824(×2), 825(×2), 826(×2), 843(×2), 844(×2)	ERD14FJ4R7	4.7Ω, 1/4W, ± 5%, Carbon	12	Y
R827(×2), 828(×2), 829(×2), 830(×2)	ERD14FJ560	56Ω, 1/4W, ± 5%, Carbon	8	Y
R839(×2), 840(×2)	ERD14FJ101	100Ω, 1/4W, ± 5%, Carbon	4	Y
R838(×2)	ERD14FJ121	120Ω, 1/4W, ± 5%, Carbon	2	Y
R901	ERD14FJ271	270Ω, 1/4W, ± 5%, Carbon	1	Y
R837(×2),904	ERD14FJ561	560Ω, 1/4W, ± 5%, Carbon	3	Y
R902	ERD18FJ2R2	2.2Ω, 1/8W, ± 5%, Carbon	1	Y
R835(×2), 836(×2)	ERX1ANJ100	10Ω, 1W, ± 5%, Metallic	4	Y
R607,608,609, 610	ERD12TJ331	330Ω, 1/2W, ± 5%, Carbon	4	Y
R831(×2), 832(×2), 833(×2), 834(×2)	ERX2ANKR33	0.33Ω, 2W ±10%, Metallic	8	Y
R905	ERG2PSK471	470Ω, 2W, ±10%, Metallic	1	Y

VARIABLE RESISTORS

VR101	EVLS3AA00B14	10kΩ (B), FM Meter Adjustment	1	X
VR102	EVLS3AA00B54	50kΩ (B), Muting Level Adjustment	1	X
VR301	EVLS3AA00B13	1kΩ (B), Separation Adjustment	1	X
VR601,602, 603,604	EVHB9A042BF5	250kΩ (B), Channel Volume Control	4	Ⓝ X
VR605-1~ 605-4	EVB83A030BF5	250kΩ (B), Main Volume Control	1	X
VR701-1, 701-2, 702-1, 702-2	EVFN9A039C14	10kΩ (C), Bass & Treble Control	2	X
VR801(×2), 802(×2)	EVLS0AA00B53	5kΩ (B), DC Unbalance Adjustment	4	X
VR803(×2), 804(×2)	EVLS0AA00B52	500Ω (B), I_{CQ} Adjustment	4	X

THERMISTORS

TH801(×2), 802(×2)	RRT251	Driver Amplifier Circuit	4	Y

CAPACITORS

C9	ECCD1H010CC	1pF, 50WV, ±0.25pF, Ceramic	1	Z
C120	ECCD1H020CC	2pF, 50WV, ±0.25pF, Ceramic	1	Z
C201	ECCD1H040CC	4pF, 50WV, ±0.25pF, Ceramic	1	Z
C19	ECCD1H100KU	10pF, 50WV, ±10%, Ceramic	1	Z
C117	ECCD1H100KC	10pF, 50WV, ±10%, Ceramic	1	Z
C1,6,12,14	ECCD1H150KC	15pF, 50WV, ±10%, Ceramic	4	Z
C5,114,119	ECCD1H180KC	18pF, 50WV, ±10%, Ceramic	3	Z
C11	ECCD1H100KT	10pF, 50WV, ±10%, Ceramic	1	Z
C13	ECCD1H390KC	39pF, 50WV, ±10%, Ceramic	1	Z
C109	ECCD1H470KU	47pF, 50WV, ±10%, Ceramic	1	Z
C421	ECCD1H560K	56pF, 50WV, ±10%, Ceramic	1	Z
C107,110,111	ECCD1H101K	100pF, 50WV, ±10%, Ceramic	3	Z
C403,404	ECCD1H151K	150pF, 50WV, ±10%, Ceramic	2	Z
C7	ECCD1H181K	180pF, 50WV, ±10%, Ceramic	1	Z
C803(×2), 804(×2)	ECCD2H030C	3pF, 500WV, ±0.25pF, Ceramic	4	Z
C809(×2), 810(×2)	ECCD2H680K	68pF, 500WV, ±10%, Ceramic	4	Z
C2,3,4,8,15,20	ECKD1H102PF	0.001μF, 50WV, $^{+100}_{0}$%, Ceramic	6	Z
C10,17,18,103, 104,115,121, 202	ECKE1H103PF	0.01μF, 50WV, $^{+100}_{0}$%, Ceramic	8	Z
C204,212	ECKE1H103MD	0.01μF, 50WV, ±20%, Ceramic	2	Z
C105,118,106, 124,207,210, 904,908,916	ECKE1H223PF	0.022μF, 50WV, $^{+100}_{0}$%, Ceramic	9	Z
C503,504	ECKD2H221KB	220pF, 500WV, ±10%, Ceramic	2	Z
C811(×2), 812(×2)	ECKD2H471KB	470pF, 500WV, ±10%, Ceramic	4	Z
C405,406,420	ECKD2H821KB	820pF, 500WV, ±10%, Ceramic	3	Z
C903	ECKDES102MD2	0.001μF, 2000VAC, ±20%, Ceramic	1	Ⓝ Z
C915,914	ECQU2A103MD	0.01μF, 250VAC, ±20%, Ceramic	2	Z
C302	ECQG05152KZN	0.0015μF, 50WV, ±10%, Polyester	1	Z
C417,418	ECQG05272JZN	0.0027μF, 50WV, ± 5%, Polyester	2	Z
C416,415	ECQG05822JZN	0.0082μF, 50WV, ±5%, Polyester	2	Z
C310,311	ECQG05392JZN	0.0039μF, 50WV, ±5%, Polyester	2	Z
C215	ECQG05103KZN	0.01μF, 50WV, ±10%, Polyester	1	Z
C101,102,122, 108,113,123	ECQG05223KZN	0.022μF, 50WV, ±10%, Polyester	6	Z
C203,208,512	ECQG05333KZN	0.033μF, 50WV, ±10%, Polyester	3	Z
C516	ECQG05473KZN	0.047μF, 50WV, ±10%, Polyester	1	Z
C920	ECQG05104KZN	0.1μF, 50WV, ±10%, Polyester	1	Z
C703,704	ECQM05273KZ	0.027μF, 50WV, ±10%, Polyester	2	Z
C711,712	ECQM05333KZ	0.033μF, 50WV, ±10%, Polyester	2	Z
C813(×2) 814(×2)	ECQM05473KZ	0.047μF, 50WV, ±10%, Polyester	4	Z
C705,706	ECQM05274KZ	0.27μF, 50WV, ±10%, Polyester	2	Z
C701,702	ECQM05334KZ	0.33μF, 50WV, ±10%, Polyester	2	Z
C601	ECQM05474KZ	0.47μF, 50WV, ±10%, Polyester	1	Z
C205	ECQS1361JZ	360pF, 125WV, ± 5%, Styrol	1	Z
C411,412	ECEA6V33	33μF, 6.3WV, Electrolytic	2	Y
C409,410, 805(×2), 806(×2)	ECEA6V47	47μF, 6.3WV, Electrolytic	6	Y
C116	ECEA6V100	100μF, 6.3WV, Electrolytic	1	Y
C407,408	ECEA6V220	220μF, 6.3WV, Electrolytic	2	Y
C911	ECEA10V47	47μF, 10WV, Electrolytic	1	Y
C211	ECEA10V100	100μF, 10WV, Electrolytic	1	Y
C912	ECEA10V220	220μF, 10WV, Electrolytic	1	Y
C909	ECEA10V470	470μF, 10WV, Electrolytic	1	Y
C918	ECEA10V1000	1000μF, 10WV, Electrolytic	1	Y
C209,304	ECEA16V10	10μF, 16WV, Electrolytic	2	Y
C917	ECEA16V100	100μF, 16WV, Electrolytic	1	Y
C807(×2), 808(×2)	ECEA16V220	220μF, 16WV, Electrolytic	4	Y
C216,303	ECEA25V3R3	3.3μF, 25WV, Electrolytic	2	Y
C112,305	ECEA25V4R7	4.7μF, 25WV, Electrolytic	2	Y

Ref. No.	Part No.	Description	Per Set (Pcs.)	Remarks
C707,708,709, 710	ECEA25V4R7LM	4.7μF, 25WV, Electrolytic	4	Y
C815(×2), 816(×2)	ECEA25V47	47μF, 25WV, Electrolytic	4	Y
C910	ECEA25V100	100μF, 25WV, Electrolytic	1	Y
C214,301,306, 307,308,309,	ECEA50V1	1μF, 50WV, Electrolytic	6	Y
C913	ECEA50V100	100μF, 50WV, Electrolytic	1	Y
C907	ECEA50V220	220μF, 50WV, Electrolytic	1	Y
C905,906	ECEA50V470	470μF, 50WV, Electrolytic	2	Y
C901,902	ECET25R4700Y	4700μF, 25WV, Electrolytic	2	Y
C213	ECAG25ER22X	0.22μF, 25WV, Electrolytic	1	Y
C125,501,502, 505,506,510, 511,517,519, 801(×2), 802(×2),	ECAG25ER47X	0.47μF, 25WV, Electrolytic	13	Y
C817,818,819 820	ECEA25V10	10μF, 25WV Electrolytic	4	Y
C414,514	ECSZ25EF1	1μF, 25WV, Electrolytic	2	Y
C401,402,419, 507,508,518	ECSZ25EF3R3	3.3μF 25WV, Electrolytic	6	Y
C413	ECSZ25EF4R7	4.7μF, 25WV, Electrolytic	1	Y

VARIABLE CAPACITORS

CV1,2,3,4,5 (CT4,5)	ECV5MD34X31G	Tuning Gang, FM & AM (Trimmer, AM ANT & AM OSC)	1	X
CT1,2	ECV1ZW10P32	Trimmer, FM ANT & FM DET, 10pF Type	2	X
CT3	ECV1ZW06P35	Trimmer, FM OSC, 6pF Type	1	X

COMPONENT COMBINATIONS

Z101	EXA5DL04C	FM Discriminator Circuit	1	Y
Z201	EXAF203Z471	AM Detector Circuit	1	Y
Z301,302	SXAM675F	Low Pass Filter, 19kHz & 38kHz	2	Y
Z901,902	RXAF103P22HD	Hum Cancel, 0.01μF, (×2), 500WV	2	Y

SWITCHES

S1-1~S1-4	SSRA45	Selector Switch	1	Ⓝ	X
S2-1~S2-8	SSRA44	Mode Switch	1	Ⓝ	X
S3-1,S3-2 / S4-1,S4-2	SSHA19S	Loudness & 2ch. Tape Monitor Switch	2		X
S5-1~S5-4	SSHA31S	4ch. Tape Monitor Switch	1	Ⓝ	X
S6-1,S6-2	----------	Balanced Transformer Less Switch	1		X
S7	SSHA14S	Refer to Ref. No. CA26 Power Source Switch	1		X
S8-1~S8-4	SSRA7-1S	Voltage Selector Switch	1		X

FUSES

F1,6	XBAS1B2002	2A, Power Source	2		X
F2,3,4,5	XBAS1A2001	2A, Circuit Protection	4		X
F7	XBAS1B1002	1A, Power Source	1	Ⓝ	X

LIGHTS

PL1,2,3,4,5,6	XAM35K	Dial & Meter Lamp (6.3V 0.25A)	6		X
PL7	XAMR33S600	Pointer Lamp (6.3V 75mA)	1	Ⓝ	X
PL8,9,10	XAM37K250	Channel Indicator (7.5V 75mA)	3		X
PL11	XAMR33S250A	Stereo Eye (6.3V 75mA)	1	Ⓝ	X

CABINETS

	SKAA620	Cabinet Complete	1	Ⓝ	Y
CA1	SKPA4	Hole, Ventilation } Order SKAA620	(1)		
CA2	SKMA180	Wooden Cabinet } Order SKAA620	(1)		
CA3	XSB4+12BVCS	Screw, Cabinet M'tg.	4		Z
CA4	SBCA36	Button, Power Source Switch	1		X
CA5	SGWA762	Front Panel	1		Y
CA6	SGUA13	Panel, Dial	1	Ⓝ	Y
CA7	SUSA39	Mounting, Dial Panel	5		Z
CA8	SUSA40	Mounting, Panel	2		Z
CA9	SGWA5001	Indicator, Panel	1	Ⓝ	Y
	SGXA41	Bracket, Tape Monitor & Loudness Switch	1		Z
	SGXA33	Bracket, Power Source Switch	1		Z
CA10	SULA40	Mounting, Complete Front Panel	2	Ⓝ	Z
CA11	XTV3D8CK	Black Screw, Panel M'tg.	6		Z
CA12	SBNA104	Knob, Bass & Treble Control	2	Ⓝ	X
CA13	SBNA107	Knob, Channel Level Control	4	Ⓝ	X
CA14	SBNA108	Knob, Volume Control	1	Ⓝ	X
CA15	SBNA105	Knob, Tuning Control	1	Ⓝ	X
CA16	SBSA3	Knob, Mode & Selector Switch	2		X
CA17	SBCA49	Button, Tape Monitor & Loudness Switch	3	Ⓝ	X
CA18	XTV3D8CR	Red Screw, Bottom Board M'tg.	12		Z

Ref. No.	Part No.	Description	Per Set (Pcs.)	Remarks
	SYUA43A	Bottom Board, Complete	1	Ⓝ Z
CA19	SKLA2-1	Leg	4	Z
CA20	SHEA3-1	Lock Pin, Leg	4	Z
CA21	SKUA252	Bottom Board Only	1	Z
	SYPA151AS	Rear Panel, Complete	1	Ⓝ Z
CA22	SJFA5201	Holder, Circuit Protection Fuses	2	Z
CA23	SJFA4806	Terminal, Speakers	1	Z
CA24	SJSA1	Socket, AC Power Source	1	Z
CA25	SMNA176S	Mounting, AC Power Source Socket	1	Z
CA26	SSSA3S	Switch, Balanced Transformer Less	1	X
CA27	RJS7A	Socket, 4ch. Remote Balancer	1	Z
CA28	SJFA4401	Terminal, FM & AM Ext. Antenna	1	Z
CA29	SGPA290B	Rear Panel Only	1	Ⓝ Z
CA30	SNEA404	Nut, Ground Terminal [Outer]	1	Z
	SNEA204-2S	Volt, Ground Terminal	1	Z
	SGTA1490	Name Plate	1	Ⓝ Z
CA31	SUPA1840	Printed Circuit Board Only	1	Ⓝ Z
CA32	SJFA3009	Terminal, PHONO, AUX, 2ch. & 4ch. Tape Monitor	1	Ⓝ Z
CA33	XTB3+8BK	Black Screw, Rear Panel M'tg.	4	Z
	RHR111	Bushing, AC Cord	1	Z
	SJAA3	Cord, AC Power Source	1	Y
	SJFA5202	Cap, Circuit Protection Fuse Holder	2	Z
	XSN26+12	Screw, Circuit Protection Fuse Holder Cap	2	Z
CA34	SGBA46	Badge, National Technics	1	Z

CHASSIS

CH1	SMYA38	Heat Sink, Power Transistor	4	Ⓝ	Z
CH2	SJSA64	Socket, Circuit Connection, 6 pin	1		Z
	SJSA63	Socket, Circuit Connection, 4 pin	2		Z
CH3	SHDA2701S	Stay Screw, FM-IF Circuit Board	4		Z
CH4	SJSA65	Socket, Circuit Connection Pin Terminal	3		Z
CH5	SDSA4141	Spring, Dial Cord	1		Z
CH6	SDDA391S	Drum, Dial Cord	1		Z
	XXAR3H6S	Screw, Drum M'tg.	2		Z
CH7	RDZ05-5	Cord, Dial (170cm) 66-7/8"	1 roll		Z
CH8	RDR20	Pulley, Dial Cord	3		Z
	RDR21	Pulley, Dial Cord	1		Z
CH9	SJJA10-1	Jack, Mic & Headphones	3		Z
	SDTA4S	Shaft, Tuning (Complete)	1	Ⓝ	Z
CH10	SDXA705S	Flywheel } Order SDTA4S	(1)		
CH11	SDTA6004	Shaft Only } Order SDTA4S	(1)		
CH12	SJSA203	Holder, Dial Light	1	Ⓝ	Z
CH13	SUMA6	Mounting, Dial Scale	1	Ⓝ	Z
CH14	SHGA630	Rubber Bracket Dial Scale	1	Ⓝ	Z
CH15	SDAA9-1	Slider, Dial Pointer	1	Ⓝ	Z
CH16	SDPA1010-1	Dial Pointer	1		Y
CH17	SJTA307	Pin Terminal, Circuit Connection	46		Z
CH18	XTV3D8C	Screw, Power Switch Mounting M'tg.	2		Z
CH19	RJV1A	Holder, Meter Lamp	1		Z
CH20	SMWA15	Mounting, Power Switch & Lamp Holder	1	Ⓝ	Z
CH21	SSMA20-1	Meter, Signal	1	Ⓝ	Z
CH22	SKDA341	Scale, Dial	1	Ⓝ	Z
CH23	SGEA3	Cap, Channel Indicator Cover	1		Z
CH24	SGKA131	Indicator, Channel	1		Z
CH25	SDUA4	Panel, Channel Indicator	1		Z
CH26	SHRA605	Cover, Channel Indicator Light	1		Z
CH27	SDUA3	Bracket, Channel Indicator Light, Red	1		Z
CH28	SDUA5	Bracket, Channel Indicator Light, Green	2		Z
CH29	SHRA604	Holder, Light	1		Z
	SHGA201	Bracket, Stereo Eye Light	1	Ⓝ	Z
CH30	SMAA23	Mounting, AM Antenna Coil	1	Ⓝ	Z
CH31	SJSA5	Socket, Power Supply Circuit Board	2		Z
	SJTA701	Cramp, Lead Wire (Refer to Page 12)	13		Z
	SMYA40	Heat Sink (TR901)	1		Z
CH32	SUBA17	Mounting, Power Switch & Button Connection	1		Z
CH33	SHEA1	Mounting, Power Switch & Button Connection	1		Z

ACCESSORIES

A1	SSAA1	Cord, FM Antenna	1	Y
A2	XBAS1A2001	Fuse, Circuit Protection (2A)	4	X
A3	RJP5	Pin Plug	8	Y
A4	RJP16AS	Plug, AC Power Source	1	Y
A5	RJP17AS	Plug, AC Power Source	1	Y

PACKING PARTS

P1	SPPA20	Soft Cover	1	Z
	SPEA4	Cover, AC Plug	1	Z
P2	SPHA2	Polyethylene Sheet	1	Z
P3	SPSA59	Pad, Set Front Side	1	Ⓝ Z
P4	SPSA60	Pad, Set Rear Side	1	Ⓝ Z
P5	SPNA130A	Carton Box (Inner)	1	Ⓝ Z
P6	SQFA154	Printed Matter, Complete	1	Ⓝ Y
	SQXA5097	Instructions Book (Order SQFA154)	(1)	
P7	SPGA223A	Carton Box (Outer)	1	Ⓝ Z

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